APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,484	10/29/2003	Dennis D. McCrady	0918.0244C	5217

27896   7590   01/24/2007
EDELL, SHAPIRO & FINNAN, LLC
1901 RESEARCH BOULEVARD
SUITE 400
ROCKVILLE, MD 20850

EXAMINER
CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/695,484	MCCRADY, DENNIS D.
	Examiner	Art Unit
	Jean B. Corrielus	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/3/07*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The finality of the last office action has been withdrawn in view of the following

new ground of rejection.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-11, 16-26 and 29-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Burchfiel US Patent Application Publication No. US2004/0092281A1

in view of Awater US Patent No. 6,175,551.

As per claim 1, Burchfiel discloses a method and apparatus fig. 13 comprising

a processor (1430) that generates a digital time-domain signal see paragraph 0138,

lines 3-6 (note that the data processor generates digital data); circuit arrangement in the

left side of fig. 13 considered as the claimed " non-contiguous spectrum selector" that

converts the digital time-domain signal to a frequency-domain signal see paragraph

0139, lines 1-7, excises a portion of the frequency-domain signal corresponding to the

at least one segment of frequency spectrum (i. e. portion of the spectrum where

interference is present) see fig. 13, "XMT excise" and paragraph 0139, lines 8-11, and

converts the excised frequency-domain signal to an excised time-domain signal see

output of transformer "IFFT of fig. 13. Note also at paragraph 0140, Burchfiel teaches

that the frequency spectrum is noncontiguous see lines11-15. However, Burchfiel does

not explicitly teach a D/A to convert the digital form prior to transmission over the

channel. However, as evidence by Awater, it is well known to use a digital-to-analog

converter converts time domain signal to an analog signal prior to transmission, see

for instance fig. 4 element 36. Given that fact, it would have been obvious to one skill in

the art to incorporate such a teaching in Burchfiel so as to allow the transmitter to

convert the digital signal into an analog equivalent so as to allow transmission over

analog channels where digital channels such as T1 are not available.

As per claim 2, Burchfiel further teaches that circuit fig. 13 (the non-contiguous

spectrum selector) comprises: a fast Fourier transform module see paragraph 0139

(note that the fast Fourier transform is a DFT) that converts the digital time-domain

signal to the frequency-domain signal, wherein the frequency-domain signal comprises

a plurality of frequency-domain samples corresponding to respective frequency bins; a

excision module (XMT excision) that selectively causes spectral nulling in the ranges

where interference is expected see fig. 13; and an inverse fast Fourier transform

module (fig. 13) that converts the excised frequency- domain signal to the excised time-

domain signal (note that the (inverse)fast Fourier transform is a (I)DFT). Burchfiel

nulling the unwanted frequency been by expanding the signal bandwidth inserting

frequency bins filled of zeroes in expected location of the interference signal rather than

removing bins in nulling expected bins. However, the teaching of Burchfiel is equivalent

to the limitation recited in the claim because the end result would be the same i.e. non

transmission of signal in undesirable band.

As per claim 3, see claim 2.

As per claim 4, Burchfiel teaches a shaping device (fig. 13) (windowing device) to shape the frequency response of the frequency bins.

As per claim 5, the digital time signal is inherently a baseband signal as the signal is generated at the baseband level (see abstract, last 3 lines).

As per claim 6, it is well known in the art to include a digital mixer in transmit chain to upconvert a digital signal into an IF signal. Given that, it would have been obvious to one skill in the art to incorporate a digital mixer in Burchfiel in order to convert the baseband signal into a format suitable for transmission.

As per claim 7, it would have been obvious to one skill in the art to couple a filter to the output of the digital to analog converter in order to remove residual error from the analog signal for enhancing signal reconstruction.

As per claim 8, the signal is a spread spectrum signal see fig. 1, 140.

As per claim 9, the time domain signal inherently has to include a plurality of samples chips because the signal is a spread spectrum signal.

As per claim 10, Awater teaches that the transmitter fig. 4 transmit data to a remote communication device see fig. 13.

As per claim 11, it is well known in the art to transmit a range waveform from a transmitter to a receiver to determine the range between the receiver and transmitter. Given that, it would have been obvious to one skill in the art to incorporate such a teaching in Burchfiel in order determine other signal parameter such as transmission power so as to enhance signal transmission between the transmitter and receiver.

As per claim 16, Burchfiel teaches a modem comprises a receiver and a

transmitter and the transmitter includes the spectrum selector see fig. 12-14.

As per claim 17, Burchfiel teaches that the system comprises a communication

device (transmitter) that includes the processor (1430, 1467), the circuit fig. 13 (non-

contiguous spectrum selector) and it would have been obvious to include a D/A in the

communication device for the reason set forth above..

As per claim 18, the communication device is a mobile device see for instance

paragraphs 003 and 005.

As per claim 19, Burchfiel teaches the system includes a plurality of

communication devices communicating in a network see paragraph 005.

As per claim 20, see claim 1.

As per claim 21, see claim 2.

As per claim 22, see claim 5.

As per claim 23, see claim 6.

As per claim 24, see claim 9.

As per claim 25, see claim 10.

As per claim 26, see claim 6.

As per claim 29, as shown in fig. 13, Burchfiel teaches that the excise portion of

the frequency spectrum is independent of a signal level of the frequency domain or time

domain signal.

As per claim 30 Burchfiel a bandwidth of the frequency domain signal generated

by the selector (fig. 13) inherently corresponds to an overall band that extends from a

lowest frequency of a lowest frequency band to a highest frequency to the highest

frequency band of the noncontiguous bands.

As per claim 31, see claim 29.

As per claim 32 see claim 30.

4.   Claims 12-15, 27 and 28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Burchfiel US Patent Application Publication No. US2004/0092281A1

in view of Awater US Patent No. 6,175,551 and further in view of Wade US patent No.

5,263,048.

As per claim 12, as applied to claim 1 above, Burchfiel Awater teach

substantially every feature of the claimed invention in addition Burchfield further

teaches that a receiver is used in connection with the transmitter see fig. 13 that

comprises a FFT that convert the received signal into frequency domain excised a

portion of the frequency domain signal corresponding to the spectrum. However it fails

to teach the receiver further comprising an analog-to-digital converter that converts a

received signal to a received digital time-domain signal; and a converter that converts

the excised received frequency-domain signal to an excised, received time-domain

signal. Wade teaches a receiver fig. 3 comprising an analog-to-digital converter 12 that

converts a received signal to a received digital time-domain signal; and circuit 10 (

receiver spectrum selector) that converts the received digital time-domain signal to a

received frequency-domain signal see output of the processor 20, excises a portion of

the received frequency-domain signal corresponding to the at least one segment of

frequency spectrum see output of circuit 22, and converts the excised received

frequency-domain signal to an excised, received time-domain signal see output of

processor 24. Given that fact, it would have been obvious to one skill in the art to

incorporate such a teaching in Burchfiel and Awater in order to provide proper means to

received and process the transmitted signal so as to recover the original signal.

As per claim 13, it is well know in the art to include a time of arrival processor in a

receiver. Given that it would have been obvious to one skill in the art to include such a

device in Burchfiel and Awater in order to determine other signal parameter such as

signal velocity so as to enhance signal transmission between the transmitter and

receiver.

As per claim 14, it is well known in the art to incorporate an acquisition processor

in a receiver for signal acquisition. Given that, it would have been obvious to one skill in

the art to incorporate such a processor in Burchfield and Awater in order to enhance

reconstruction of the original signal .

As per claim 15 the circuit perform interference excision see paragraph 0139.

As per claim 27, see claim 12.

As per claim 28, see claim 13.

Response to Arguments

5.   Applicant's arguments filed 1/3/07 have been fully considered but they are not

moot in view of a new ground of rejection.

Conclusion

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jean B Corrielus
Primary Examiner
Art Unit 2611
1-22-07